

FORT WILLIAM

water pollution control plant

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ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

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ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET, TORONTO 5
OFFICE OF THE GENERAL MANAGER

Members of the Fort William Local Advisory Committee,
City of Fort William.

Gentlemen:

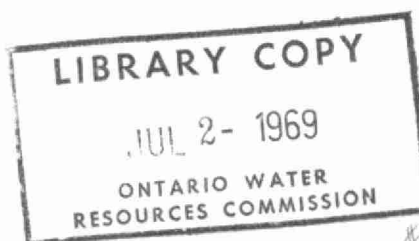
We are happy to present you with the 1967 Operating Summary for the Fort William Water Pollution Control Plant, OWRC Project Nos. 2-0050-60, 2-0091-61 and 2-0173-64.

Your co-operation with our staff throughout the year has been appreciated. Only with such co-operation can the war against water pollution be waged effectively.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly".

D. S. Caverly,
General Manager.



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ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET
TORONTO 5

J. A. VANCE, LL.D.
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J. H. H. ROOT, M.P.P.
VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am pleased to submit to you the 1967 Operating Summary for the Fort William Water Pollution Control Plant, OWRC Project Nos. 2-0050-60, 2-0091-61 and 2-0173-64.

The summary reviews progress during the year, outlines operating problems encountered and summarizes in graphs, charts and tables all significant flow and cost data.

Yours very truly,

A handwritten signature in dark ink, reading "D. A. McTavish".

D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary has been prepared in order to acquaint readers with the management of the project during 1967. The efficiency of the plant's operation is reflected in a general review. Significant financial details are recorded, and technical performance is illustrated by graphs and charts.

The summary should answer two salient questions. Are the project's facilities adequate at this time? And can the project meet future requirements?

The Regional Operations Engineer is primarily responsible for the preparation of the report, and will be pleased to answer any questions regarding it.

Most of the material for the graphs and charts was compiled by the statistics section of the Division of Plant Operations, with the final versions of the graphs being drawn by the draughting section of the Division of Sanitary Engineering. Cost data were provided by the Division of Finance.

It will be evident from the report that all of these groups co-operated with substantial success.

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FORT WILLIAM

water pollution control plant

operated for

THE CITY OF FORT WILLIAM

by the

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'67 REVIEW

During 1967, 1441.77 mg of raw sewage were treated. This was an increase of 45% over 1966, but still considerably below plant capacity.

The cost of treatment was \$65,894.52 or \$45.70 per million gallons, a unit cost reduction of 16%. This unit cost will continue to decrease as the flow to the plant increases.

The Kam Interceptor Sewer was introduced to the system and greatly increased flows. Average spring and early summer flows exceeded 5 mgd.

A reserve fund expenditure was used to repair and waterproof the walls of the treatment plant during the summer.

The Fort William Water Pollution Control Plant is operated by Chief Operator Ken Corbett. The plant is now supervised 16 hours per day, seven days a week and plant staff has increased to seven with the addition of an operator and a mechanic's assistant. Maintenance of the Kam sewer and the Brunswick Avenue Pumping Station is also supervised by plant staff.

PROJECT COSTS

NET CAPITAL COST:

2-0050-60 (Final)	\$1,336,345.25	
2-0091-61 (Estimated)	<u>2,585,659.73</u>	\$3,922,004.98

DEDUCT - Portion financed by CMHC

2-0050-60 (Final)	855,626.69	
2-0091-61 (Estimated)	<u>1,722,029.58</u>	2,577,656.27

Long Term Debt to OWRC

2-0050-60	480,718.56	
2-0091-61	<u>863,630.15</u>	
		<u>\$1,344,348.71</u>

Debt Retirement Balance at Credit (Sinking Fund) December 31, 1967

2-0050-60	\$ 54,282.42	
2-0091-61	<u>56,709.57</u>	\$ <u>110,991.99</u>

	<u>2-0050-60</u>	<u>2-0091-61</u>	<u>Total</u>
Net Operating	\$ 69.15	\$ 65,894.52	\$ 65,963.67
Debt Retirement	9,701.00	17,428.00	27,129.00
Reserve	8,090.16	15,034.18	23,124.34
Interest Charged	<u>27,109.37</u>	<u>48,703.06</u>	<u>75,812.43</u>
Total	<u>\$44,969.68</u>	<u>\$147,059.76</u>	<u>\$192,029.44</u>

RESERVE ACCOUNT

	<u>2-0050-60</u>	<u>2-0091-61</u>	<u>Total</u>
Balance at Jan. 1, 1967	\$ 42,285.16	\$ 28,044.28	\$ 70,329.44
Deposited by Municipality	8,090.16	15,034.18	23,124.34
Interest Earned	2,576.67	1,800.40	4,337.07
	<hr/>	<hr/>	<hr/>
	\$ 52,951.99	\$ 44,878.86	\$ 97,830.85
Less Expenditures	-	8,544.00	8,544.00
	<hr/>	<hr/>	<hr/>
Balance at December 31, 1967	\$ <u>52,951.99</u>	\$ <u>36,334.86</u>	\$ <u>89,286.85</u>

Following is a summary of costs for Project No. 2-0173-64
(Brunswick Avenue sewage pumping station):

NET CAPITAL COST (Estimated)	
Long Term Debt to OWRC	<u>\$28,502.68</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1967	\$ <u>1,478.19</u>
Net Operating	\$ -
Debt Retirement	575.00
Reserve	182.21
Interest Charged	<u>1,607.34</u>
TOTAL	\$ <u>2,364.55</u>

RESERVE ACCOUNT

Balance at January 1, 1967	\$ 279.46
Deposited by Municipality	182.21
Interest Earned	<u>19.99</u>
	\$ 481.66
Less Expenditures	-
	<hr/>
Balance at December 31, 1967	\$ <u>481.66</u>

MONTHLY OPERATING COSTS

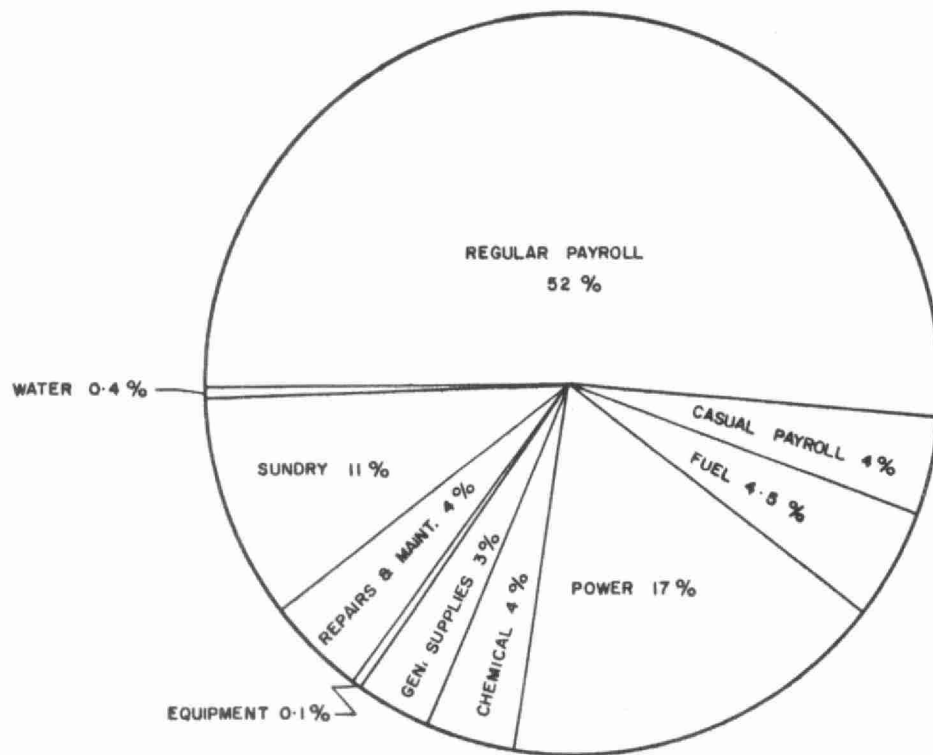
MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	3,228.76	1,389.35	601.96	324.27	701.67	-	60.10	-	100.81	2.00	48.60
FEB	3,884.07	2,450.81	127.68	369.22	725.73	-	76.39	-	47.00	87.24	-
MARCH	6,105.71	4,177.98	-	359.15	729.91	-	203.11	-	266.76	368.80	-
APRIL	4,850.35	2,620.26	60.63	543.25	966.73	62.16	172.40	37.91	241.43	96.98	48.60
MAY	5,607.09	2,796.47	-	307.85	998.79	896.70	100.16	60.90	295.94	150.28	-
JUNE	5,712.71	2,651.54	152.13	295.75	182.78	-	89.64	-	24.36	1582.16	734.35
JULY	5,495.18	2,605.75	289.03	180.11	1,750.81	-	81.48	-	789.95	483.90	(85.85)
AUG	5,790.63	2,687.35	304.26	96.00	837.06	1550.85	107.49	-	144.54	63.08	-
SEPT	6,378.64	4,103.30	455.45	96.00	944.37	-	263.59	-	50.40	465.53	-
OCT	5,216.44	2,682.78	289.03	113.55	953.68	-	472.82	-	250.18	404.45	49.95
NOV	7,037.22	2,958.49	172.49	154.53	827.74	-	143.07	-	334.24	2446.66	-
DEC	6,587.72	2,970.24	221.87	260.66	1,601.28	-	484.37	-	189.66	803.04	56.60
TOTAL	65,894.52	34,094.32	2,674.53	3100.34	11,220.55	2509.71	2,254.62	98.81	2,735.27	6954.12	252.25

* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$1,554.30
BRACKETS INDICATE CREDIT

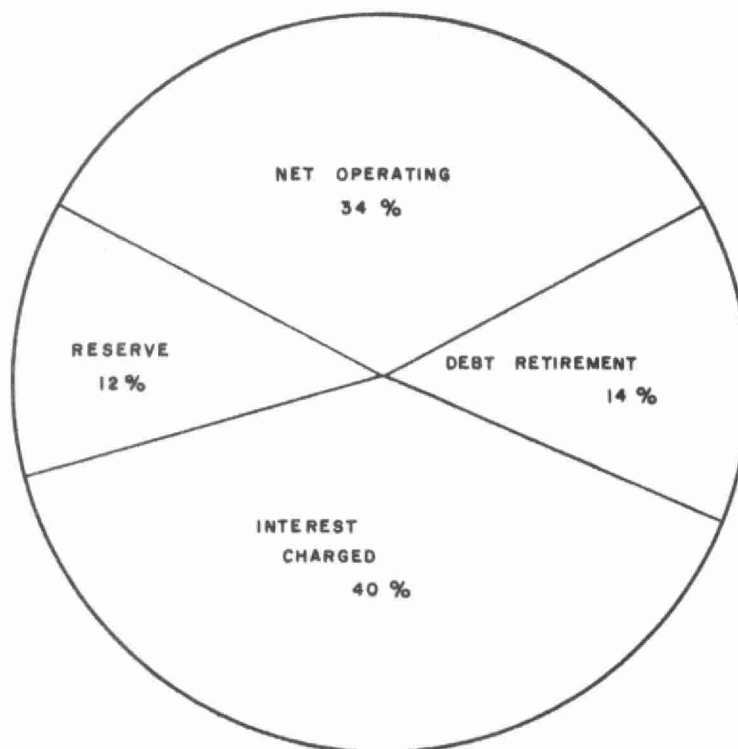
YEARLY OPERATING COSTS

YEAR	M. G. TREATED	TOTAL COST	COST PER MILLION GALLONS	COST PER LB OF BOD REMOVED
1965	676.38	\$53,523.57	\$ 79.13	23 CENTS
1966	995.52	\$53,980.73	\$ 54.22	16 CENTS
1967	1441.77	\$65,894.52	\$ 45.70	14 CENTS

1967 OPERATING COSTS



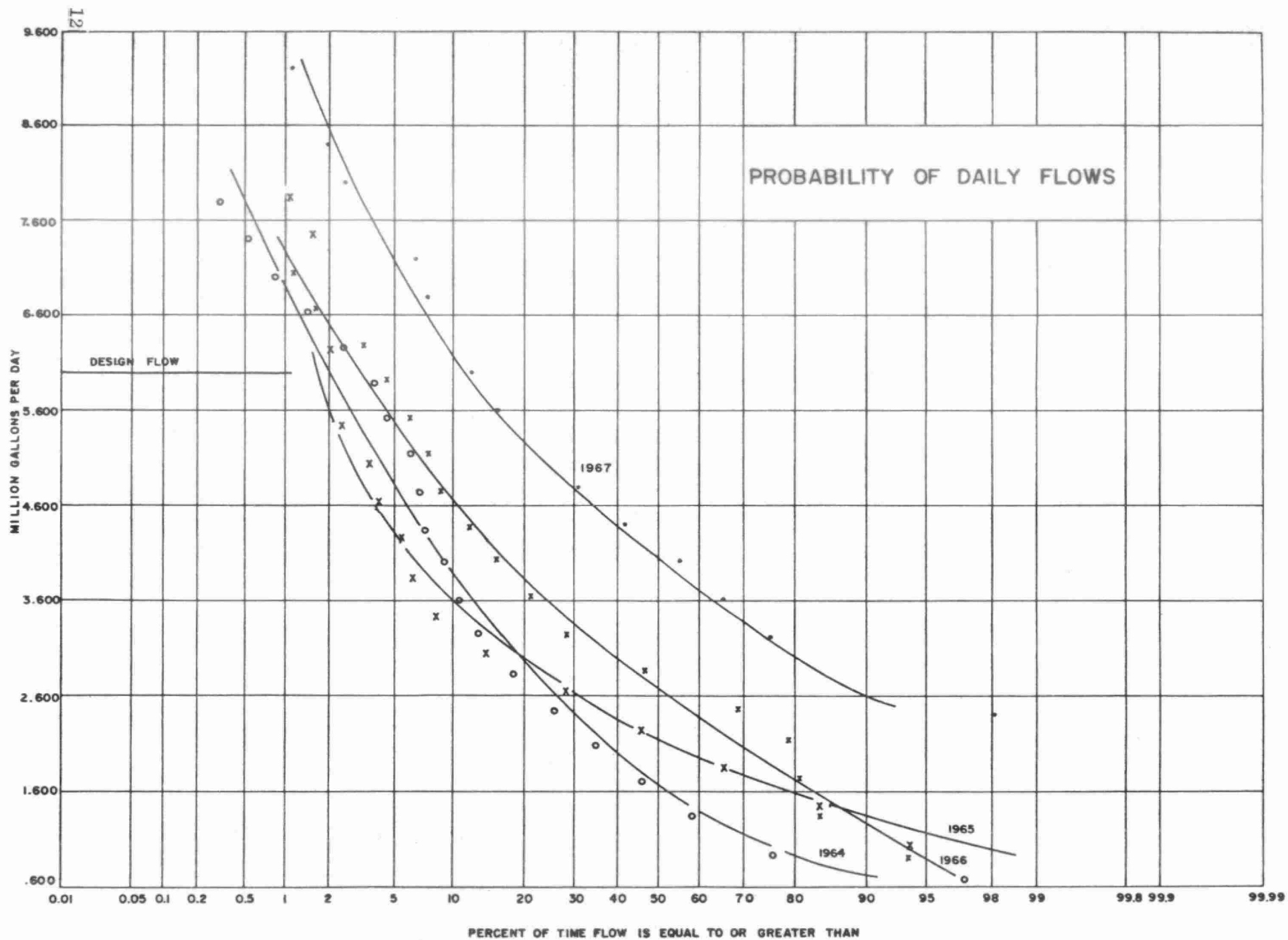
TOTAL ANNUAL COST

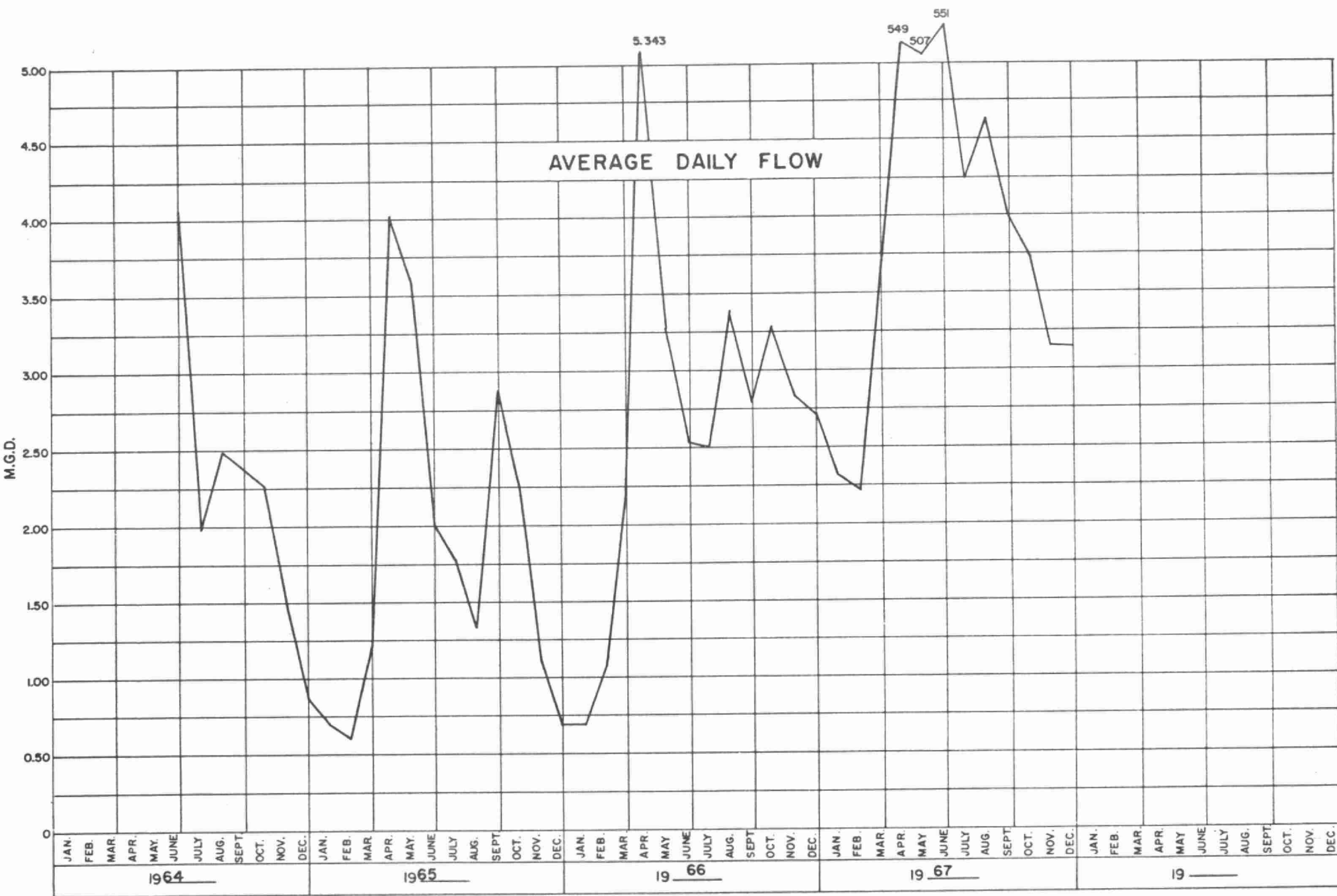


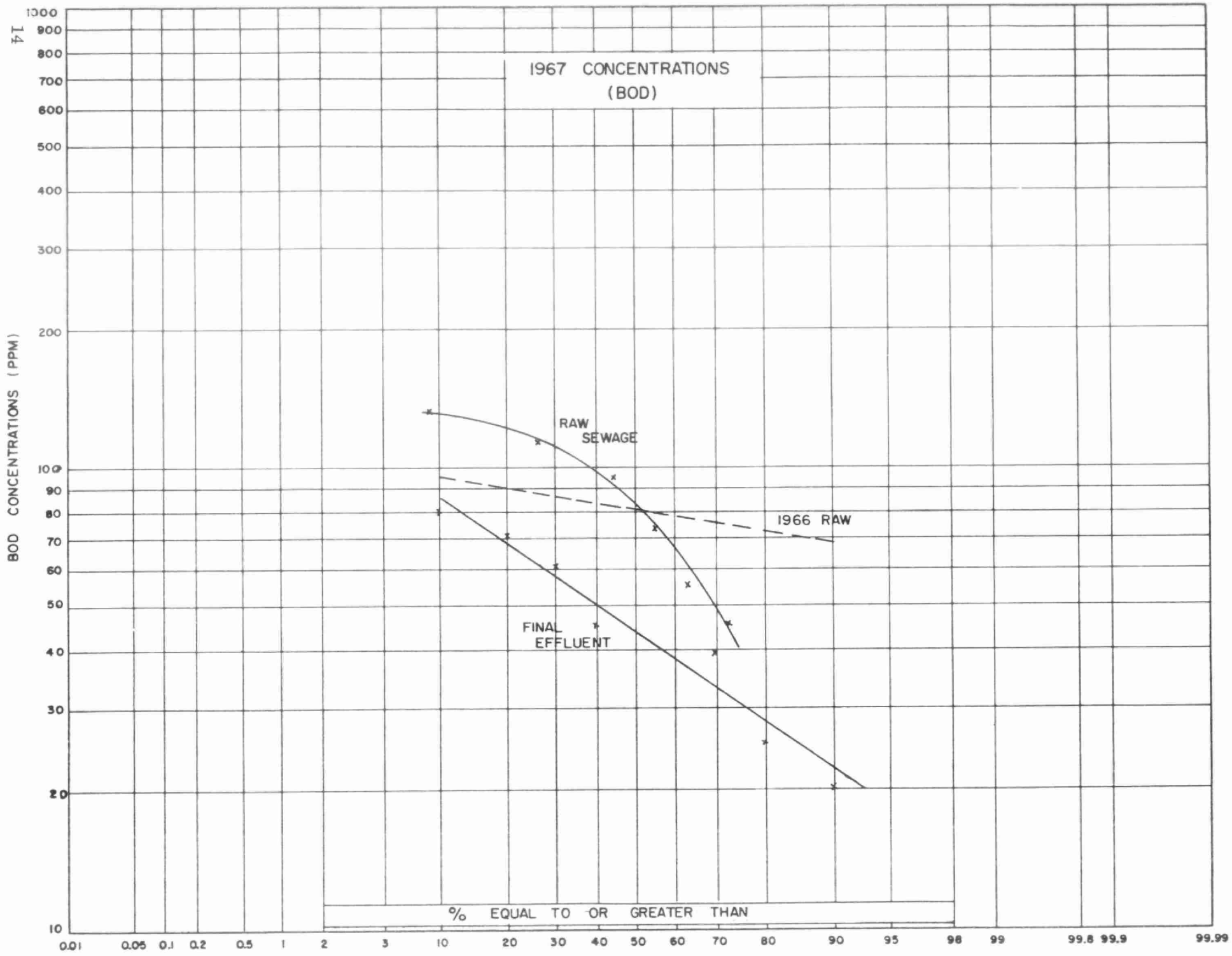
Process Data

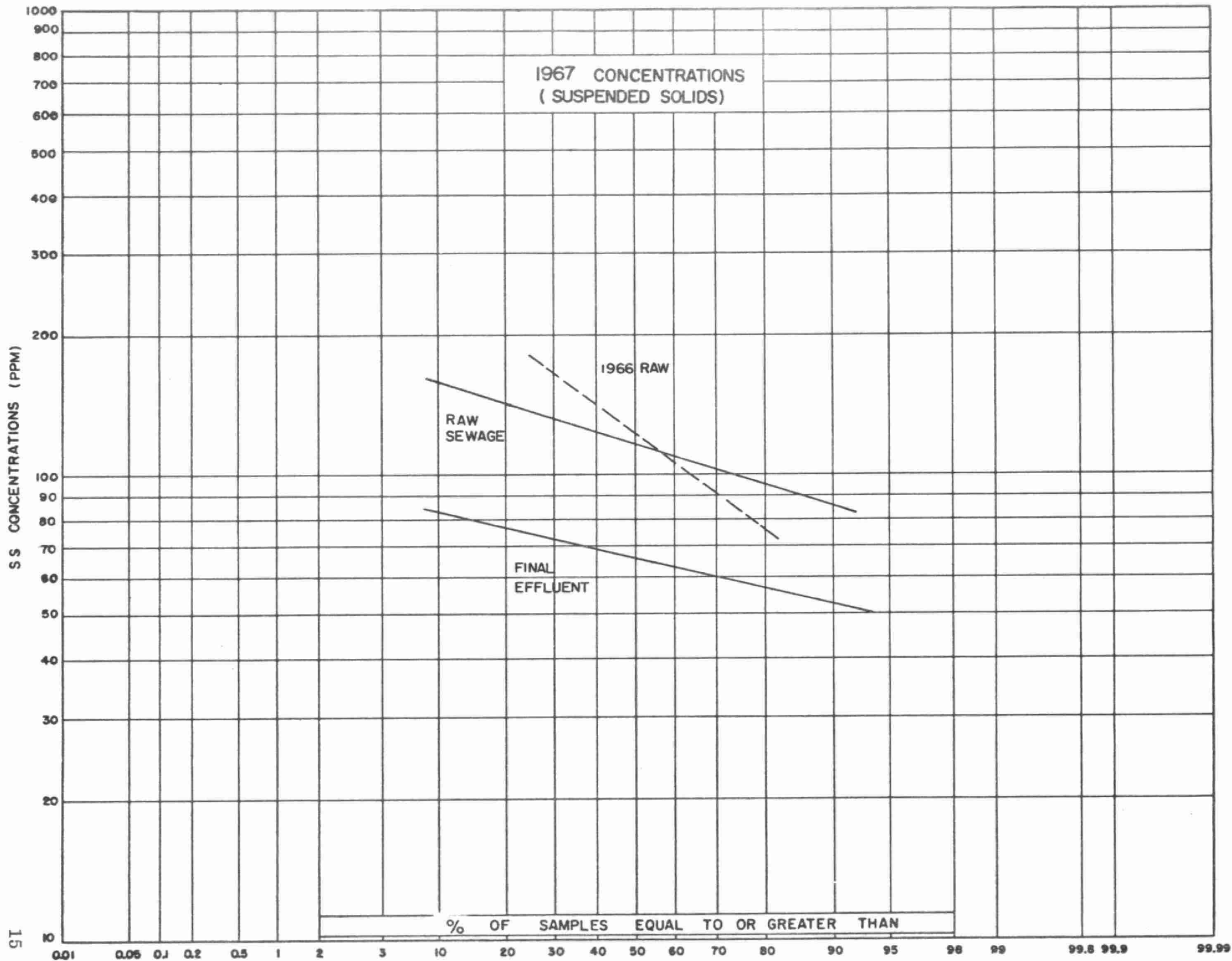
The average daily flow for 1967 was 3.95 mgd. This represents 66% of design capacity. The design capacity was exceeded 11% of the time, and this was during spring runoff and storm flows.

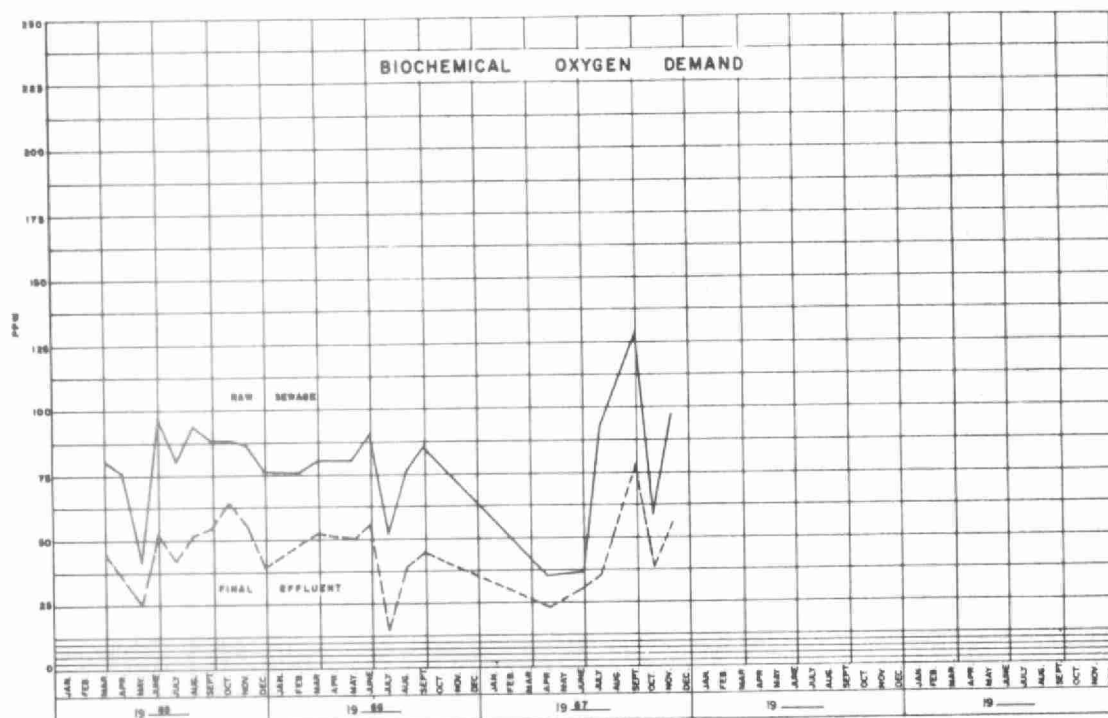
The addition of the Kam Interceptor Sewer substantially increased flows to the plant.



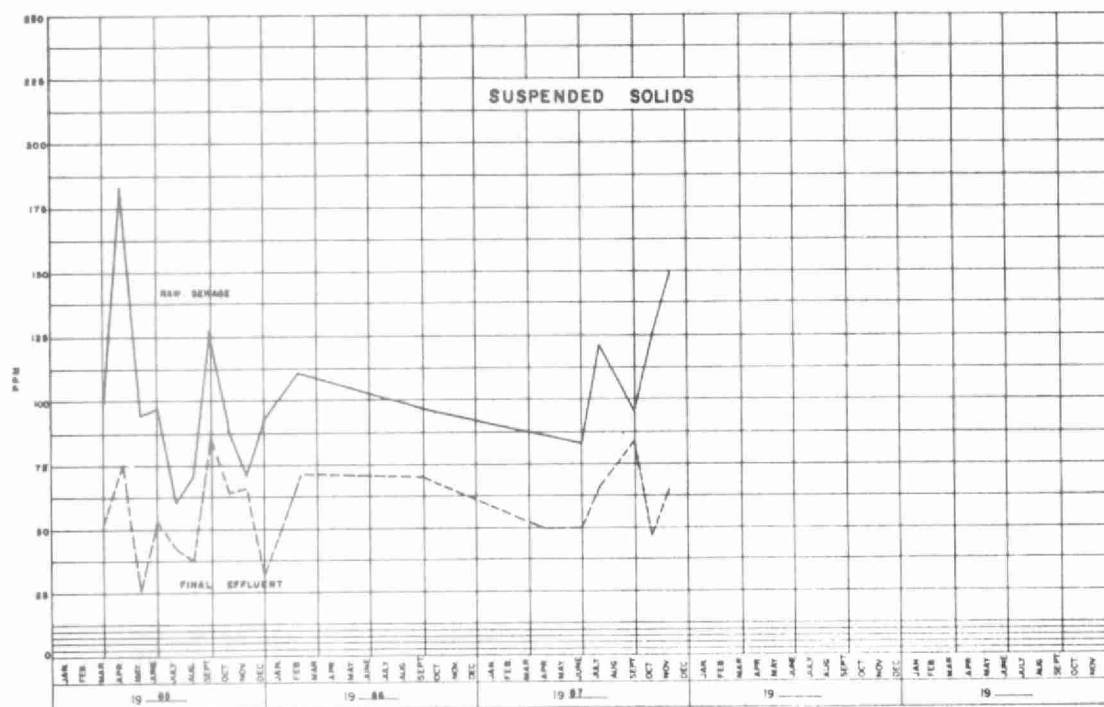








MONTHLY VARIATIONS



GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	-	-	-	-	-	-	-	-	280
FEB.	-	-	-	-	-	-	-	-	175
MAR.	-	-	-	-	-	-	-	-	427
APR.	36	23	36.1	10.71	86	50	41.9	29.646	322
MAY	-	-	-	-	-	-	-	-	294
JUNE	37	31	16.2	4.96	83	50	39.8	27.30	343
JULY	93	36	61.3	37.66	122	66	45.9	37.00	263
AUG.	-	-	-	-	-	-	-	-	350
SEPT.	130	79	39.2	30.78	96	84	12.5	7.24	301
OCT.	59	39	33.9	11.63	125	47	62.4	45.37	329
NOV.	98	55	43.9	20.46	149	65	56.4	39.97	294
DEC.	-	-	-	-	-	-	-	-	343
TOTAL	-	-	-	230.68	-	-	-	360.44	3721
AVG.	76	44	38.4	19.22	110	60	43.2	30.04	310

COMMENTS

The plant provided an average reduction of 38.4% for BOD and 43.2% for suspended solids. Percent removals are not high but are as expected with weak sewage.

Grit removal averaged 2.6 cubic feet per million gallons which is low for a sewage system that includes both sanitary and storm sewage.

DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	CU FT	% SOLIDS	% VOL. MAT	CU. FT.	% SOLIDS	% VOL. MAT	
JAN.	496943			4043			472.570
FEB.	446815			66718			387.490
MAR.	569613			90977			213.700
APR.	419641	1.33		63012	8.20		121.340
MAY	304970			53744			161.620
JUNE	404754	3.87		50039	8.14		205.990
JULY	1254192	1.77		-	7.73		548.310
AUG.	362847			60316			799.690
SEPT.	343227	3.14		51892	16.60		596.570
OCT.	398443	3.71		-	9.26		448.980
NOV.	360851			51892			470.730
DEC.	434981			72277			630.440
TOTAL	5797,277	-		564,910	-		5057.43
AVG.	483106	2.76			9.99		421.45

COMMENTS

The total amount of sludge pumped to the digesters was 5,797,277 gallons. Liquid digested sludge was hauled regularly throughout the year and 564,910 gallons were removed. Production of methane gas totalled 5,057,430 cubic feet, slightly less than in 1966.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	72.08	595	.82
FEBRUARY	62.21	542	.87
MARCH	113.45	710	.63
APRIL	164.70	* 124	.38
MAY	157.20	** 1700	1.97
JUNE	165.43	6018	4.84
JULY	132.15	5910	4.47
AUGUST	144.30	*** 4828	3.84
SEPTEMBER	120.71	5186	4.30
OCTOBER	116.33	4222	3.63
NOVEMBER	95.16	-	-
DECEMBER	98.05	-	-
TOTAL	1441.77	29835	-
AVERAGE	120.15	2984	2.58

* Chlorination for 6 days

** Chlorination for 17 days

*** Chlorination for 27 days

COMMENTS

Disinfection of the final effluent by the use of chlorine is practiced from May 15 to October 30 in order to avoid any danger to public health. A chlorine residual of 0.5 ppm after a 15 minute contact period is maintained.

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CONCLUSIONS

Unit costs continue to decrease as higher flows are received. The addition of sewers to the system has increased flows to within 78% of the design capacity of the plant.

The plant is being maintained and operated efficiently and is producing a good primary effluent.

